



# Manual

Welcome to the World of 3D Measuring

## English

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### **Disclaimer**

The influence of the operator on the measuring process is dominant, thus making him fully responsible for accuracy and safety. While using the Proliner he must ensure that: No one is allowed near the cable or the control box while the pen is in use. A broken cable or dropped pen can cause rapid and unpredictable retraction of the cable which can severely injure anyone it might contact.

We advice to make control measurements once in a while to ensure accuracy.

The Proliner is a precision measuring machine. Let only trained personnel work with the Proliner. Do not use the Proliner in areas where there is a lot of construction work.

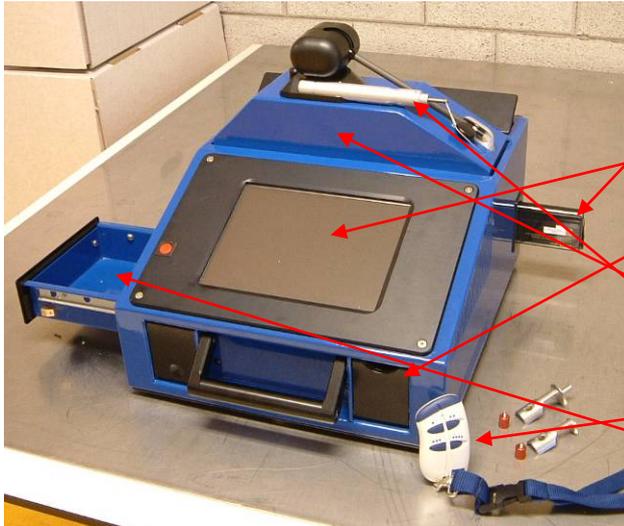
Proliner<sup>®</sup> is a registered brand name of Prodim International BV.

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## 1. Getting Familiar



1. Battery holder and battery
2. Battery charger
3. Touch screen with power button
4. Connections for USB, keyboard, network and power adapter
5. Foldable measuring unit
6. Measuring pen and scanner add-on
7. Remote control
8. Storage boxes



1. Only the batteries and power supply provided can be used with the Proliner. Make sure that the batteries are inserted with the connector pins on the right side, otherwise you could damage the Proliner. The batteries will last up to 2 hours. When the machine is started, the indicator shows what battery life is left. When the capacity reaches 10%, a repetitive beep will be heard until the Proliner shuts down. When the Proliner is connected to a power socket, it will charge the inserted battery.



2. The battery charger will charge a completely empty battery in 2 hours.

Description indicators:

**Orange:** charging

**Green blink:** 80% done charging

**Green:** charged

**Red:** failure (take out battery and insert again)

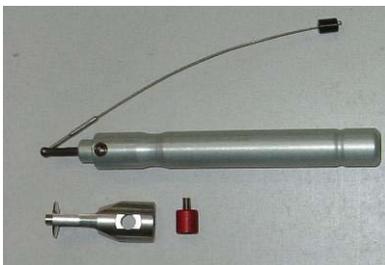


3. The 8 inch touch screen should be handled with care. Do not operate the screen with sharp objects. Do not use any chemicals or fluids to clean the screen, but use a dust free cloth. Simply press the red power button to switch the Proliner on and off.

4. The Proliner has several connections:



- 2 USB-connections: to insert a USB-stick for uploading the measurements
- keyboard-connection: to connect a keyboard if necessary
- network-connection: to connect your Proliner to a network for maintenance
- power-connection: to use the Proliner with a power-socket



5. The foldable measuring unit is the most important part of your measuring device. The measuring head should always be handled with care. The head should always be folded to the inside when transporting the Proliner. Unfolding the head can be done by pressing on the left side of the unit and rotating it until it is fixed in place with a click (see picture). When folding it back in again, make sure that the measuring arm and pen are in the holder. With the measuring head you are able to measure completely around the Proliner. It can rotate 410 degrees horizontally, so there are no positions around the Proliner that are unreachable. The 7 meter measuring cord allows you to cover up to 14 meters in diameter. When reaching the end of the wire, a repetitive beep will be heard. At both ends it has a stop where also an alarm can be heard when reaching it. Never stretch the cord over these stops as this could cause damage to the measuring cord and measuring arm, in addition to negatively influencing the accuracy of your measurement. As a general rule is to place the Proliner touch screen facing more or less the object to be measured.

6. The measuring pen can be used for every job you can imagine. When measuring a template you can simply screw on the scanner add-on with the red screw. When not in use, put back the pen in its holder. Make sure that it is attached with a click.

7. The remote control is used to register the points in your measurement. It comes with a standard 3V battery. If the remote-control no longer responds, the battery may need to be replaced. To do this, open the small cover at the back of the remote control. When you are touching the object to measure, simply press on the corresponding buttons and the chosen function will be applied.



• **Point mode**

One press is for registering a single point. The Proliner will automatically draw a line between the measured points. When the button is kept pressed, you are able to trim a contour. Measure two points for the first element → start the second element by pressing button 1 long → measure the second point for the second element → the lines will be auto-trimmed.

•• **Scan mode**

When this button is pressed the Proliner will register a contour until the button is pressed again. This contour will consist of straight lines as well as radii depending on the nature of the object to be measured.

••• **New contour / layer**

With this button you can measure a new contour within the drawing. When the button is kept pressed, it will start a new contour with a new layer name.

•••• **Delete last point / contour**

With this button you can delete a single point. When the button is kept pressed, it will delete the last contour.

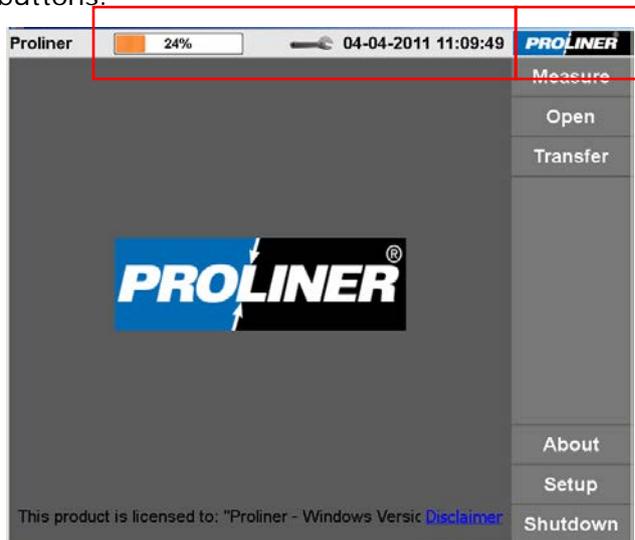


8. On the left side of the Proliner and on the top are two storage boxes. They can be opened by pressing (*see pictures*). Here you can store the remote control, additional accessories, batteries and your personal belongings.



## 2 Menu structure

In the main screen, all the menu's are accessible by pressing on the corresponding buttons.

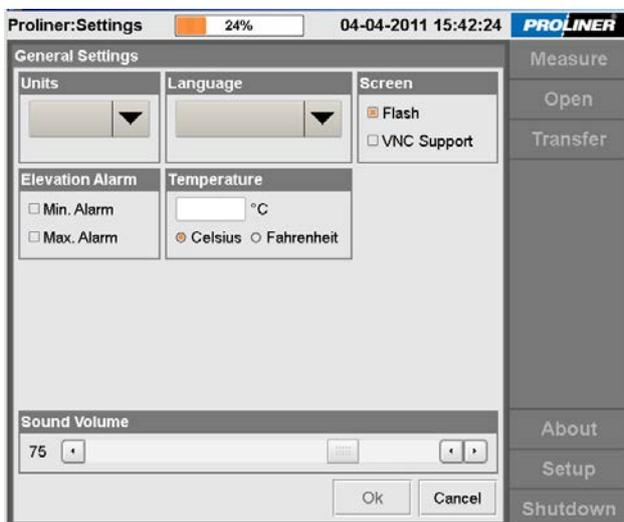


On the topside, you can see the battery indicator, which tells you how much power the battery has left. Next to it the date and time are shown.

When pressing on the Proliner logo in the upper right corner, the screen will turn upside-down. This is useful when the Proliner is positioned on its backside.

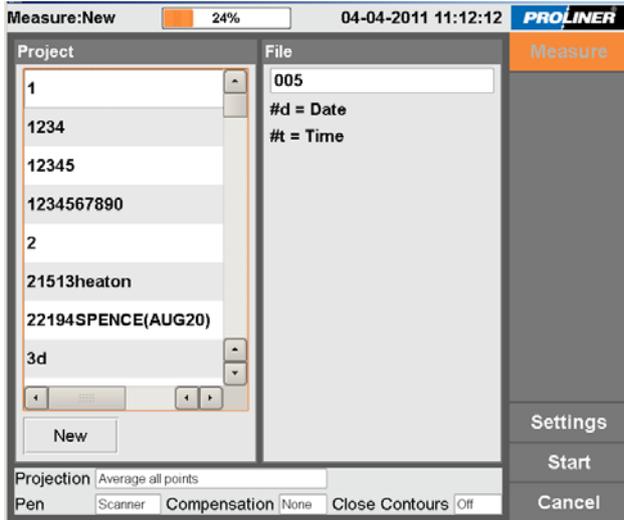
- **Shutdown** will switch of the device
- In the bottom left the name is shown to whom the device is registered
- **Disclaimer** will lead to an extra window with the copyrights explained

## Settings Menu



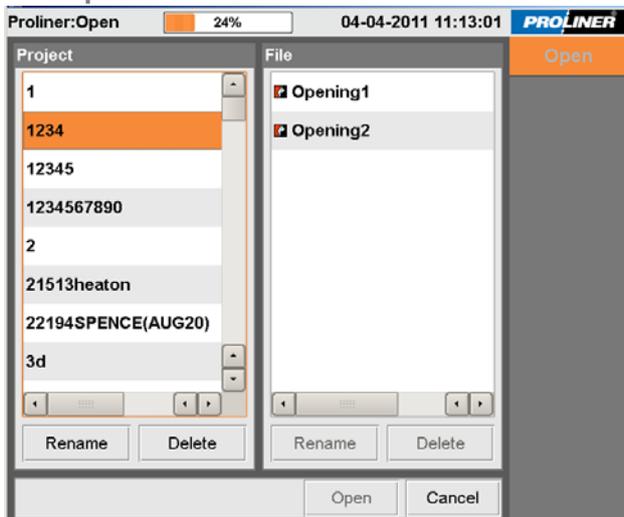
By clicking the Wrench at the top, you will enter the **System Settings**. Here you can select your **Language** and **Units**. Make sure that the given **Date/Time** is correct so that the drawing will provide the right information after a measurement is made. You can change the beeping **Volume** by sliding the bar and you can choose whether the **Screen** should *flash* or not when measuring a point. This can be useful when working in environments where it is difficult to hear the beep.

## 2.1 Measure Menu



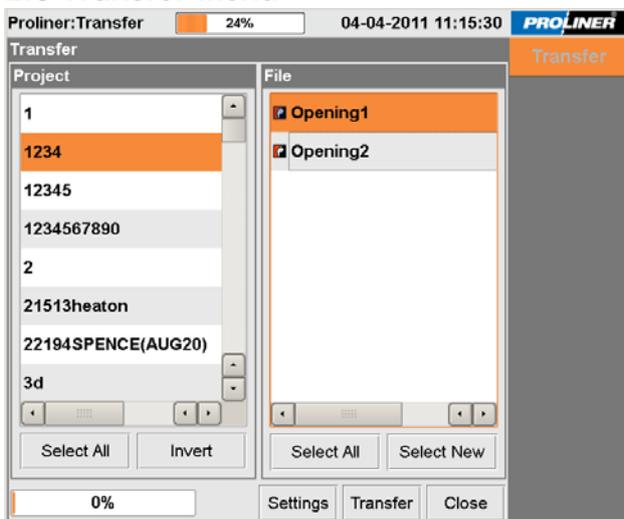
When pressing the **Measure** button, the following window will appear. Here you can setup your next measurement in six steps. Starting up a measurement will be described in [Chapter 3](#).

## 2.2 Open Menu



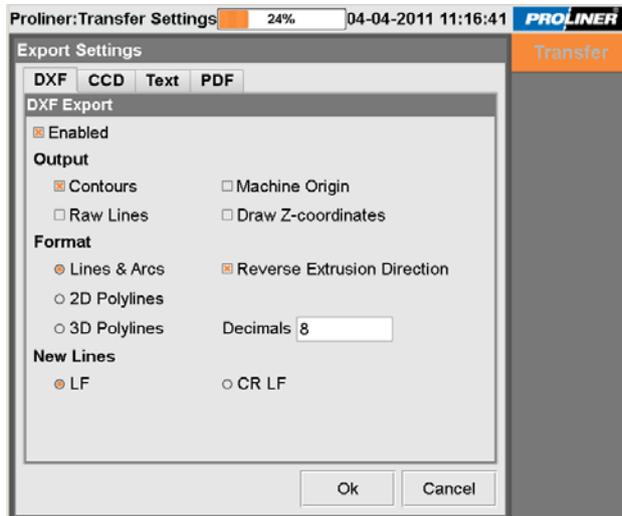
In here you can find all the measurements stored in the Proliner. By choosing a project and/or drawing name you can **Rename** or **Delete** this file. When opening a file, you are able to either continue or edit a measurement. (described in [Chapter 3](#) and [Chapter 4](#) respectively)

## 2.3 Transfer Menu



In the transfer menu you can upload a measurement into the USB-stick. Click on single or multiple projects and choose the measurements to upload and press **Transfer**. It will generate the project names as folder names and the drawing names as filenames.

When clicking on **Settings**, you can choose whether you want to save a DXF- Text- and Remarksfile.



**DXF / CCD Export.** A DXF-file can be opened with any CAD-program or CNC-machine. The CCD file is specifically made for Vector. At the section *Output* you can select what needs to be stored in the DXF ([chapter 3.4 page 16](#)) At the section *Format* (only for DXF) the file can be set up to suite your CAD-program.

**Text Export.** Optionally a text file can be saved in which the coordinates of the measurement are saved and a remarks text file, when remarks have been made at a measurement.

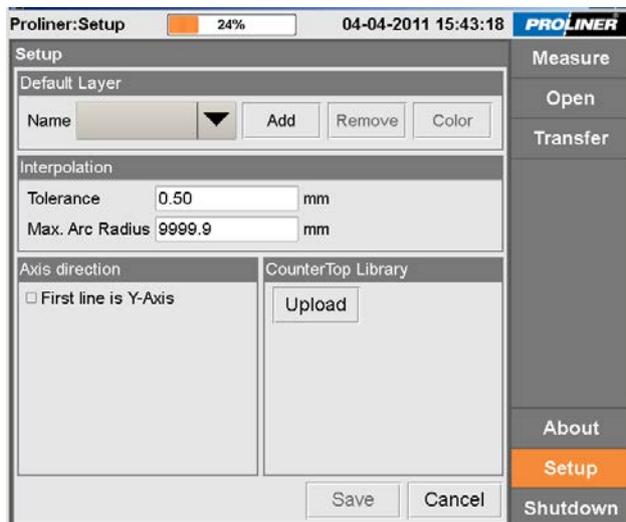
## 2.4 About Screen



This screen provides information regarding the installed software version and how to contact Prodim International B.V.

## 2.5 Setup Menu

General settings for the Proliner can be changed in this menu.



At the **Default Layer** section, standard layer names can be setup with a defined colour. Think of the following layer names (often used in the countertop industries):

- Bevel
- Bull nose
- Demi Bull nose
- Ogee
- Straight Edge
- Waterfall
- Wall
- Backsplash
- Socket

In the **Interpolation** section, tolerance is set to *0.50 mm* as a default value. When measuring a very unsmooth template though, you are able to set the tolerance a little higher, *0.80 mm* for instance. This allows the Proliner to filter out the unevenness.

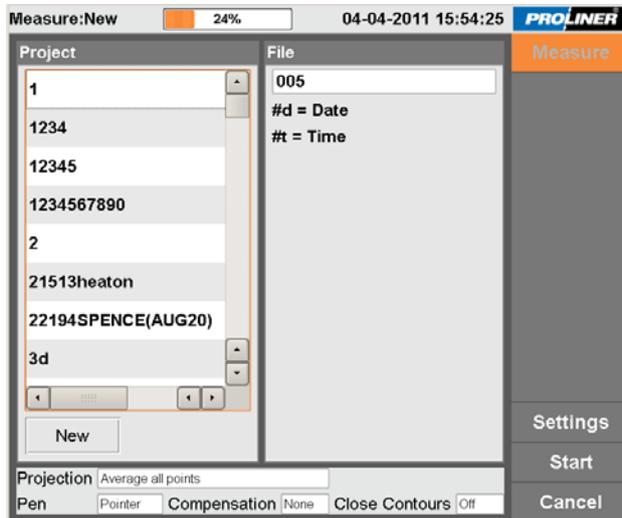
The Max. Arc Radius defines the maximum size a radius can have.

At the section **Axis direction**, you can setup whether you want the Proliner to store the first two points automatically on the Y-axis instead of the X-axis. This can be useful when measuring doors.

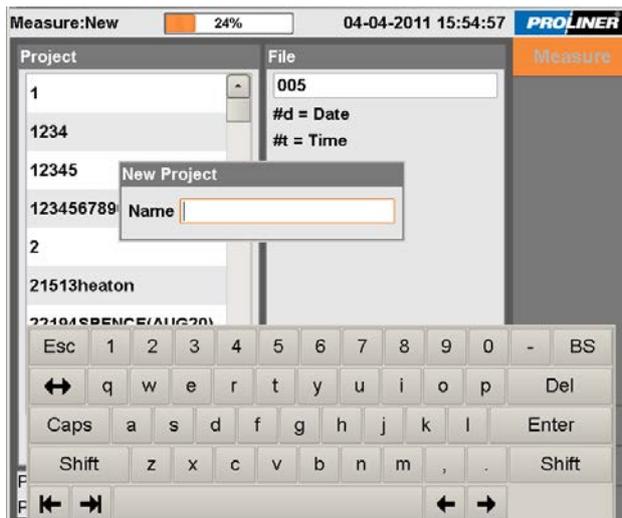
**Countertop Library:** Here your optional created Library with cutouts can be uploaded to the Proliner.

### 3. Measuring

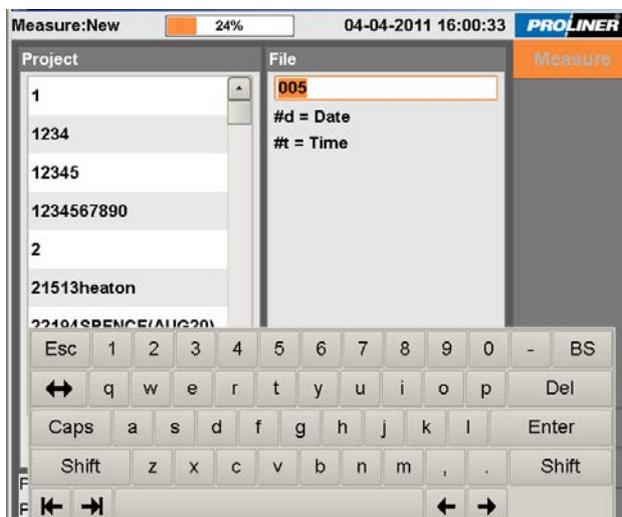
#### 3.1 Setting up a measurement



When pressing the **Measure** button, the aside window will appear where you can setup your next measurement in six steps.

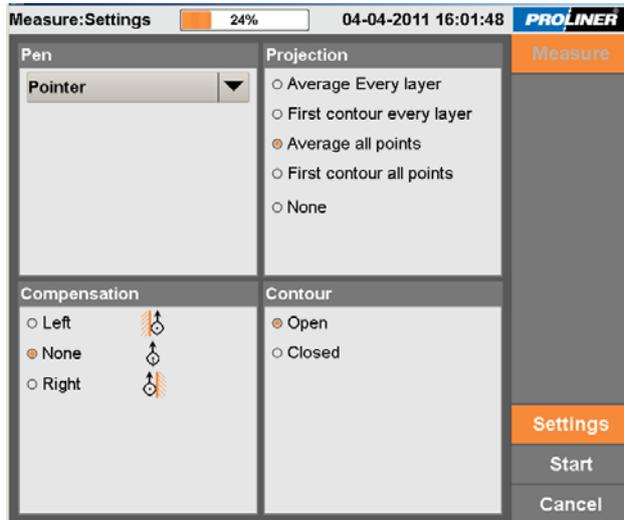


1. First create a **New Project**. Press **New** and type a project name using the keyboard. Confirm by pressing **Enter**. Alternatively you can select an existing project.



2. Press **File** to change the drawing name. Confirm again by pressing **Enter**. After this measurement the drawing name will automatically be renamed with the upcoming number. When you first filled in 001, it will generate 002, to avoid double names. Of course you may change the drawing name manually if you wish.

### 3.2 Measure Settings Menu

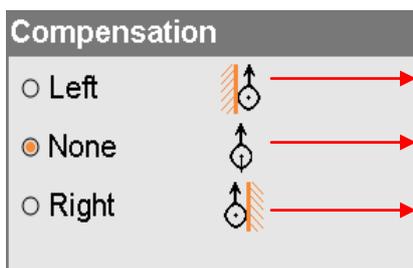


3. Press **Settings** to setup some important options before starting your measurement.



4. Choose a **Pen** to measure with. This is either the **Pointer** or **Scanner**. In general the scanner will be used only to measure templates. Use the pointer for other measurements like: floors, doors, windows, teak decks, countertops and stairs.

5. Next thing to setup is a **Compensation**. The measurement needs to be compensated due to the thickness of the pen tip, which has a radius of 2.5 mm. This means that you are measuring too big when measuring an outside contour and too small for an inside contour. Depending on the direction you are about to measure, you can either select a **Left** or a **Right** compensation. When using **None**, it won't compensate the drawing, leaving you to compensate afterwards, when editing the drawing.



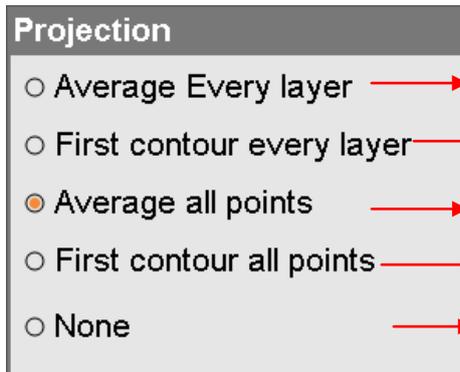
Measuring an outside contour in CCW direction. The object is on the left side of the measuring direction. The inside contour needs to be measured in CW direction. Only then the object is on the left side of the measuring direction.

The radius of the measuring pen is not compensated. The user can manually create a correction by drawing an offset when editing the measurement.

Measuring an outside contour in CW direction. The object is on the right side of the measuring direction. The inside contour needs to be measured in CCW direction. Only then the object is on the right side of the measuring direction.

6. One of the last things to do is to choose a **Projection**. This is an important function, often used. The Proliner creates for each measurement a 2D drawing. Even if you are measuring several points in 3D, a 2D plane needs to be defined.

There are 5 options:



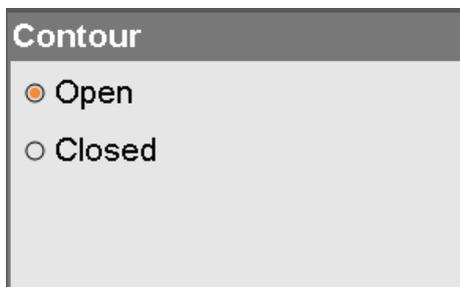
It is possible to create different layer names when measuring a new contour within the same drawing. In this case the software will look at every layer name created. The plane will be made at the average of all measured points.

The software will only refer at the first contour of each layer. Is also possible to first measure 3 points in a new layer, to define your plane and then start with measuring the points in this layer.

The software creates an average 2D drawing through all measured points in the drawing.

The 2D drawing will be projected to the very first contour measured in this drawing.

The Proliner will NOT create a 2D drawing and will only show the 3D drawing. It is then possible to show point to point dimensions in the Edit menu.

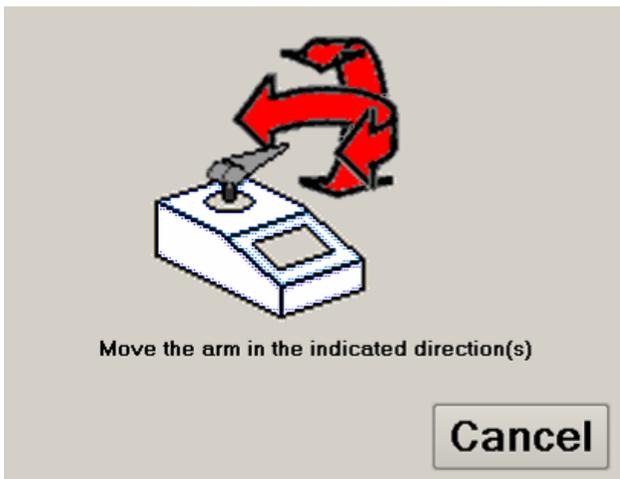


7. **Contour.** Here you can be choose whether a contour needs to be **Closed** or **Open**. When **Closed**, the Proliner will draw a line from the last measured point to the first measured point in every contour. All measurements can be done using either of them. In the countertop industry though, this option often is **open**. When measuring templates, this option is **closed**.

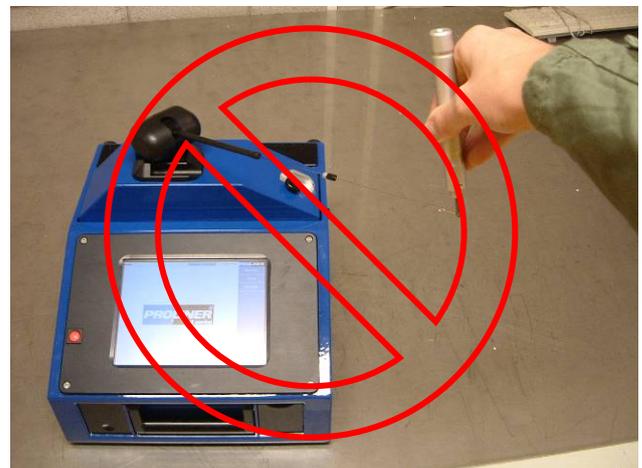
### 3.3 Rules of measuring

A few important steps are necessary to establish an accurate measurement:

- Make sure that both the Proliner and the object to be measured are standing steady. They must not move during the measurement.
- Choose the correct pen type (scanner or pointer).
- When you have selected a pen compensation, make sure you are measuring in the correct direction.



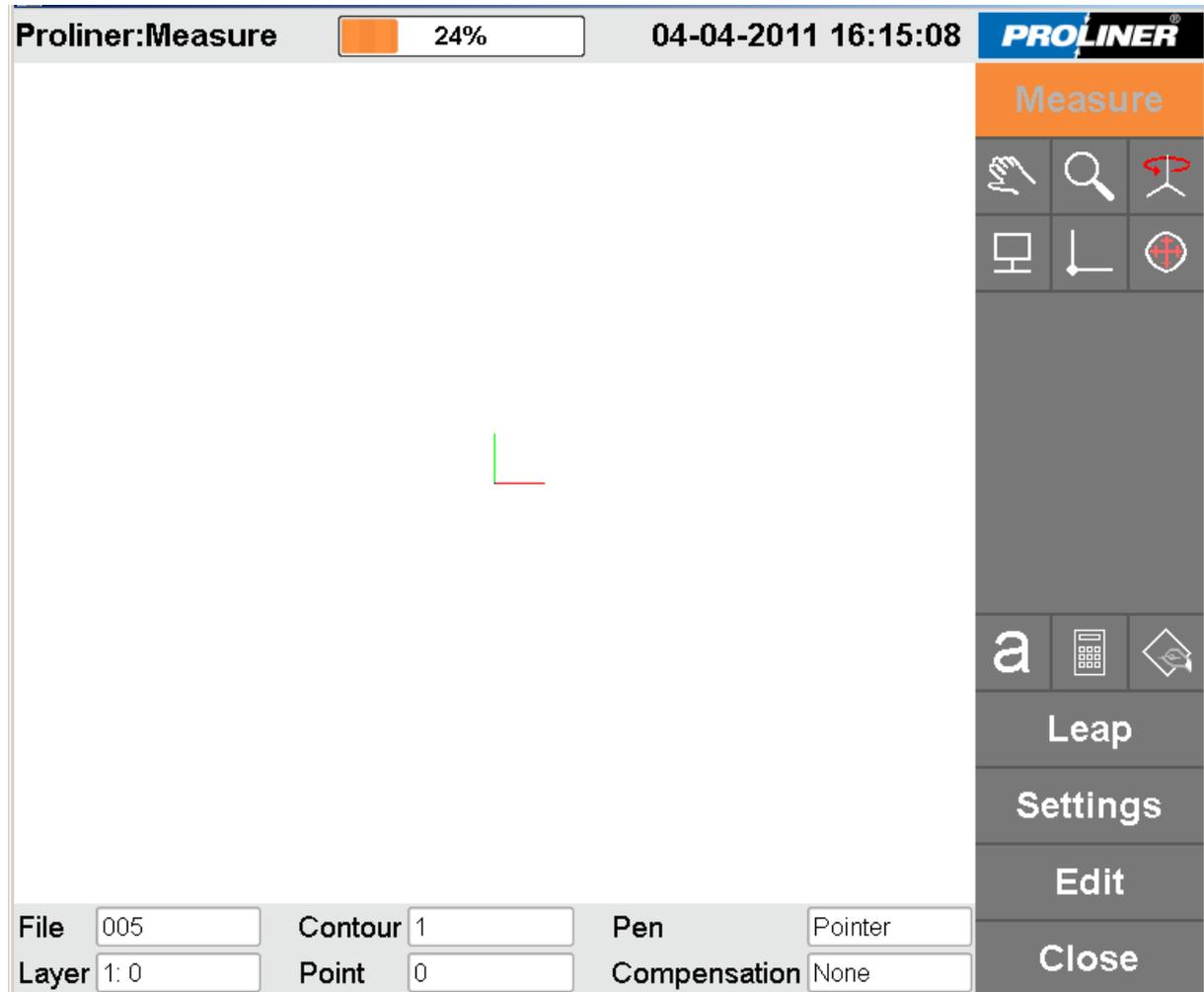
- As soon as you have pressed on **Start**, the machine will ask for a horizontal and vertical index search. When moving the arm horizontally and vertically, the wire should be completely retracted. To avoid pulling at the wire during the index search, hold the measuring arm and pen in one hand.



- During the measurement, the wire must be in a straight line at all time.
- Make sure nothing is touching the wire during the measurement.
- Take your time for a measurement.

### 3.4 Starting a measurement

After setting up your measurement, press **start** to begin your measurement. When the index search is complete, the following screen will appear.



File: Shows the **Filename**  
 Layer: Shows in which **Layer** number and name you're measuring  
 Contour: Shows in which **Contour** you are measuring  
 Point: Shows how many **Points** are measured in the current contour  
 Pen: Shows which **Pen** is selected  
 Compensation: Shows which **Compensation** is selected

-  **Pan:** Move the measurement by pressing on screen and moving it around
-  **Zoom:** Zoom in by moving down on the screen and zoom out by moving up
-  **Rotate:** Rotate the measurement by pressing the screen and moving around
-  **Align:** The measurement can be aligned with a selected layer
-  **View all:** When pressed, the measurement will be shown exactly fitted in the window.



**View Mode:** Various settings for what is displayed

Display	
<input checked="" type="checkbox"/> Contour	→ Shows the interpolated/compensated measured contour.
<input type="checkbox"/> Element Ends	→ Shows the end of every element in a contour.
<input type="checkbox"/> Raw Points	→ Shows the raw 3D points, which are not interpolated and compensated.
<input type="checkbox"/> Origin	→ Shows the first measured point of the drawing which is always corresponding with the <b>Origin</b> .
<input type="checkbox"/> Z-Lines	→ Shows height-lines between the Raw Points and the 2D Contour.
<input type="checkbox"/> Machine Origin	→ Shows the position of the Proliner during the measurement.
<input type="checkbox"/> Show Leapfrog	→ Shows the points taken for a leapfrog measurement (when present).



**Remarks** –Notes can be made, in this field. The file can optionally be saved as a text file to send to the USB-stick.



**Calculator**

Leap
Settings
Edit
Close

To establish measurements with a range larger than 14 metres. (**Chapter 3.7**)

To alter **Settings** for different contours in the drawing. Besides Projection, Pen and Pen compensation also layer names and –colours can be changed.

To end the measurement and proceed to the **Edit** menu. (**Chapter 4**)

To **Close** the measurement and ask whether it needs to be saved or not.

### 3.5 Example 1 – Template

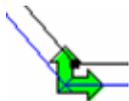
Before starting the measurement take the rules into account as described in [chapter 3.3](#)



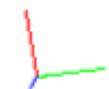
The information bar gives the current information of the measurement, which is:

Named **001**.  
 Busy in contour **4**,  
 of the Layer named **Laag**.  
 This contour contains **49** points.  
 The measurement is done with a **Scanner**,  
 with a **Left** compensation.

In this example all the display options are switched on.



The two green arrows are the contour origin.



These three coloured lines show the machine origin, the position of the Proliner regarding the object.



The black line is the compensated contour.  
 The black dot shows the end of an element.  
 The blue line is the raw 3D contour.  
 The perpendicular blue lines are the z-lines.

### 3.6 Example 2 – Using a reference plane

When saving a 2D contour, the Proliner gives you several options to define this plane. Different circumstances need different settings.

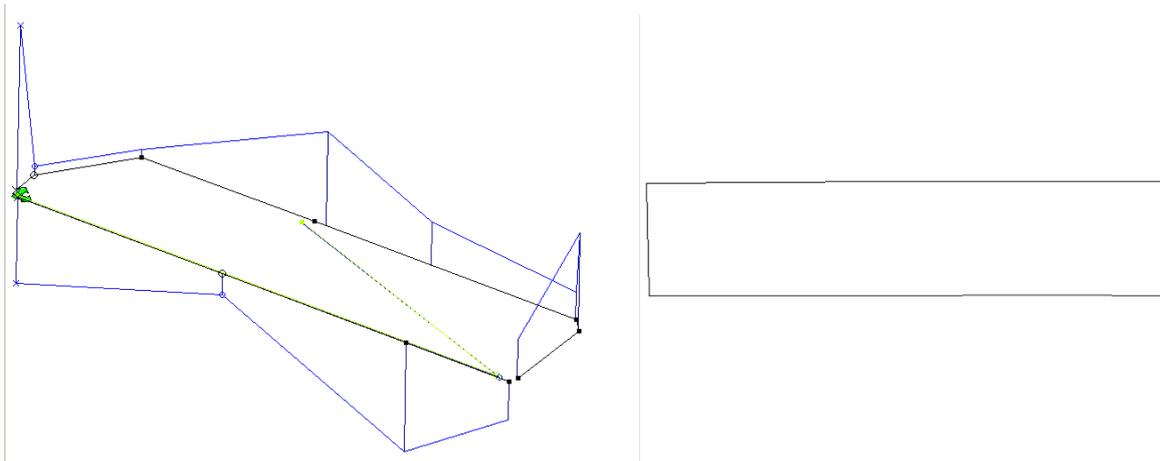
In this example a kitchen top is measured where we could not reach all the point at the same level. Therefore we were forced to measure a lot higher up onto the wall. Remind to always measure as close as possible to the object. In this measurement the points are taken up high onto the wall and very close to the floor to show what the effect on the projection option is.

The picture below shows a 3D view of the measured kitchen top. The triangle (3 reference points on top of the cabinets) defines the reference plane.

**Projection**  
 **First contour all points**

#### First contour all points

All the points in the drawing are projected to the plane defined by the first three points. The top view in the right picture is looking perfect.

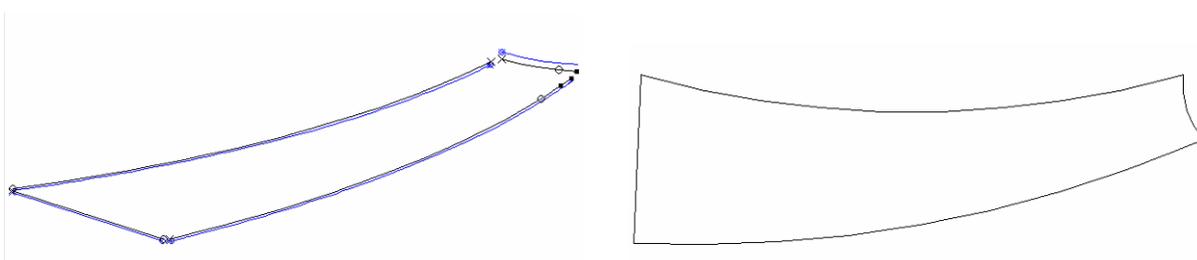


*The black lines show the 2D contour, the blue lines are the raw 3D points.*

**Projection**  
 **Average all points**

When not working with this option, but choosing for **Average all points**, you can let the Proliner middle all the measured points.

This option can be very useful, when measuring a template or when measuring separate lines as different contours. See the following example.



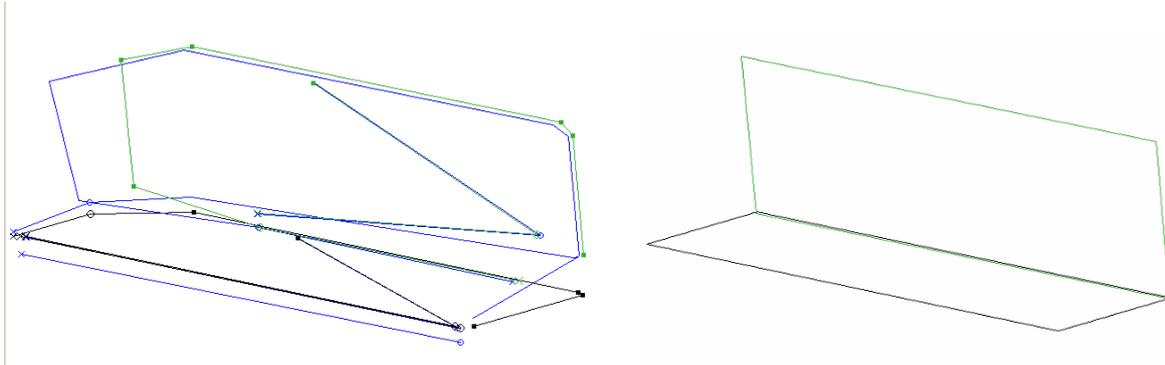
*The black lines show the 2D contour, the blue lines are the raw 3D points.*

When working with different layer names, it is possible to measure different planes in 3D and still creating a perfect 2D drawing for each of them.

**Projection**  
 **First contour every layer**

The option **First contour every layer** establishes a separate 2D projection plane for every layer present in the measurement.

In this example both the countertop and backsplash have been measured.



*The black lines show the 2D contour, the blue lines are the raw 3D points.*

**Projection**  
 **Average Every layer**

When choosing for **Average Every layer**, the Proliner will again look at all measured points to create an average 2D drawing. This will be done for every layer separately.

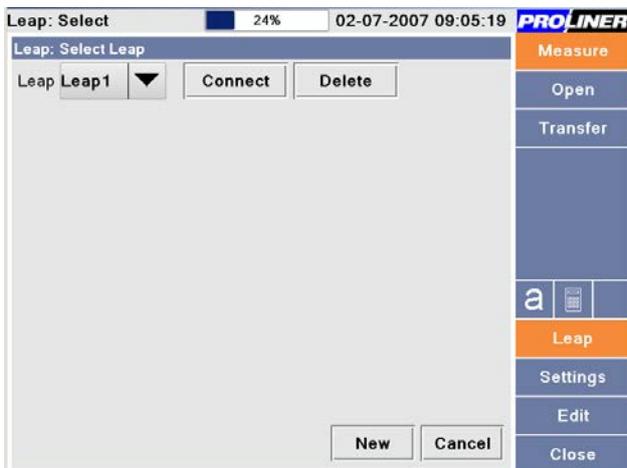
### 3.7 Example 3 – Leapfrog



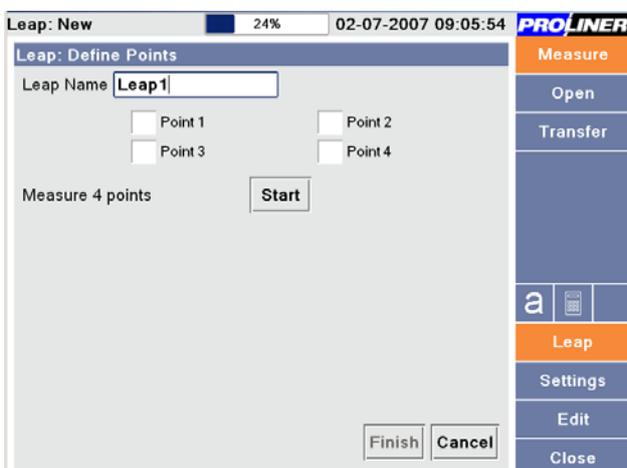
Leapfrog stands for combining multiple measurements into one.

We are about to measure a room, which is too big to measure in one time. For these kind of measurements we have the **Leap** solution. In the picture *the 4 pod accessories* are shown, which will be reference points to combine the measurements.

Start your measurement as you would do it normally. Position your Proliner on a place where you can reach most of the parts of your object. In that case you need as few measurements as possible. When ready with that part, a **Leap** needs to be defined.

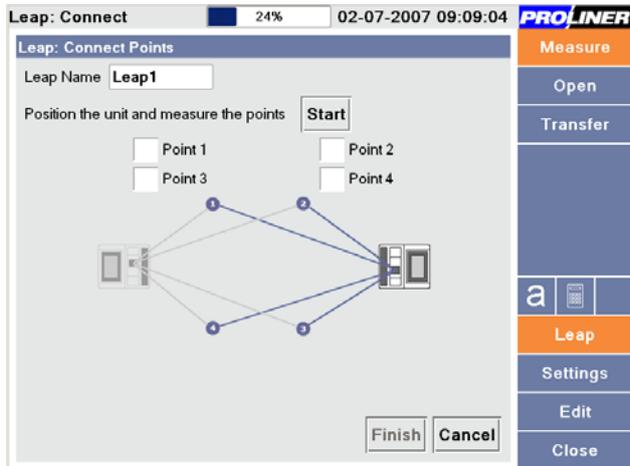


When **Leap** is pressed, the side screen will appear. Here you can either select to **Connect** to an already defined Leap or to create a **New Leap**. We are going to make a new one.



After **New** is pressed we can choose a name and then **Define the Points**.

- Press **Start**
- Take the **4** points, as accurate as possible with button 1 on your remote
- Press **Finish**.

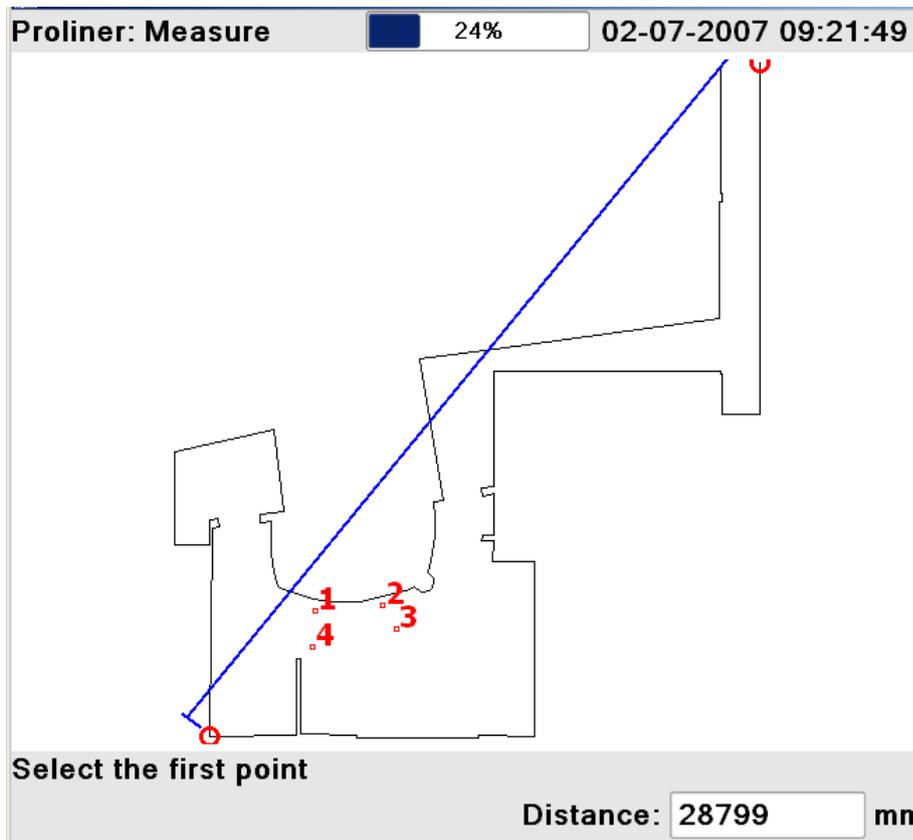


Now the Proliner can be moved to the new position to finish the rest of the object. At the new position, start with **Leap** again. Choose in the dropdown box the Leap to which the drawing needs to be connected and press **Connect**.

- Press **Start**
- Take the **4** points again, as accurate as possible
- Check the misfit
- Press **Finish**.

Continue the measurement. These steps can be repeated as often as necessary. There are no limits.

This is the result:



This measurement was done with five leapfrog positions, with a diagonal dimension of almost 29 metres.

#### Rules of leapfrog measurement:

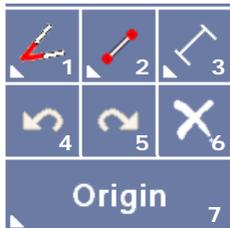
The reference points must be positioned stable.

- The 4 points shouldn't be positioned:
1. to close to each other
  2. in one line
  3. in a perfect square

## 4. Editing

When the measurement is done, press **Edit**. You will automatically proceed to the **Edit** menu. On the right side a few new icons appear.

### 4.1 Buttons explained



The small arrows in the bottom left corner of a button, indicate that a dropdown menu is present. The icon or text displayed is the active function. When keeping the button pressed, the dropdown box will appear automatically to show all present functions.

The first three buttons are from left to right menu's for **1. changing**, **2. drawing** and **3. dimensioning**.

The second line with buttons are for **4. undoing changes**, **5. redoing changes** and **6. deleting elements that you select**.

Finally the last button is the menu for **7. changing measuring settings**.

#### Menu 1 – Change



**Trim** – Connecting two lines together



**Extend** – Extending an element to a defined line



**Colours** – Changing colours for selected contour/layer/measurement



**Fillet** – Connecting two elements together with a defined radius



**Break** – Breaking an element equally in a number of split points



**Layer names** – Changing layer names



**Offset** – Giving a (range of) elements a defined offset



**Line Colour** – Change colour for selected element

#### Menu 2 – Draw



**Horizontal Line** – Drawing a horizontal line from a start point to another point



**Radius/Circle through contour** – Drawing a radius or circle through a contour with selected points



**Vertical Line** – Drawing a vertical line from a start point to another point



**Circle** – Drawing a circle on a selected center point with a defined radius or point



**Aligned Line** – Drawing a direct line between two selected points

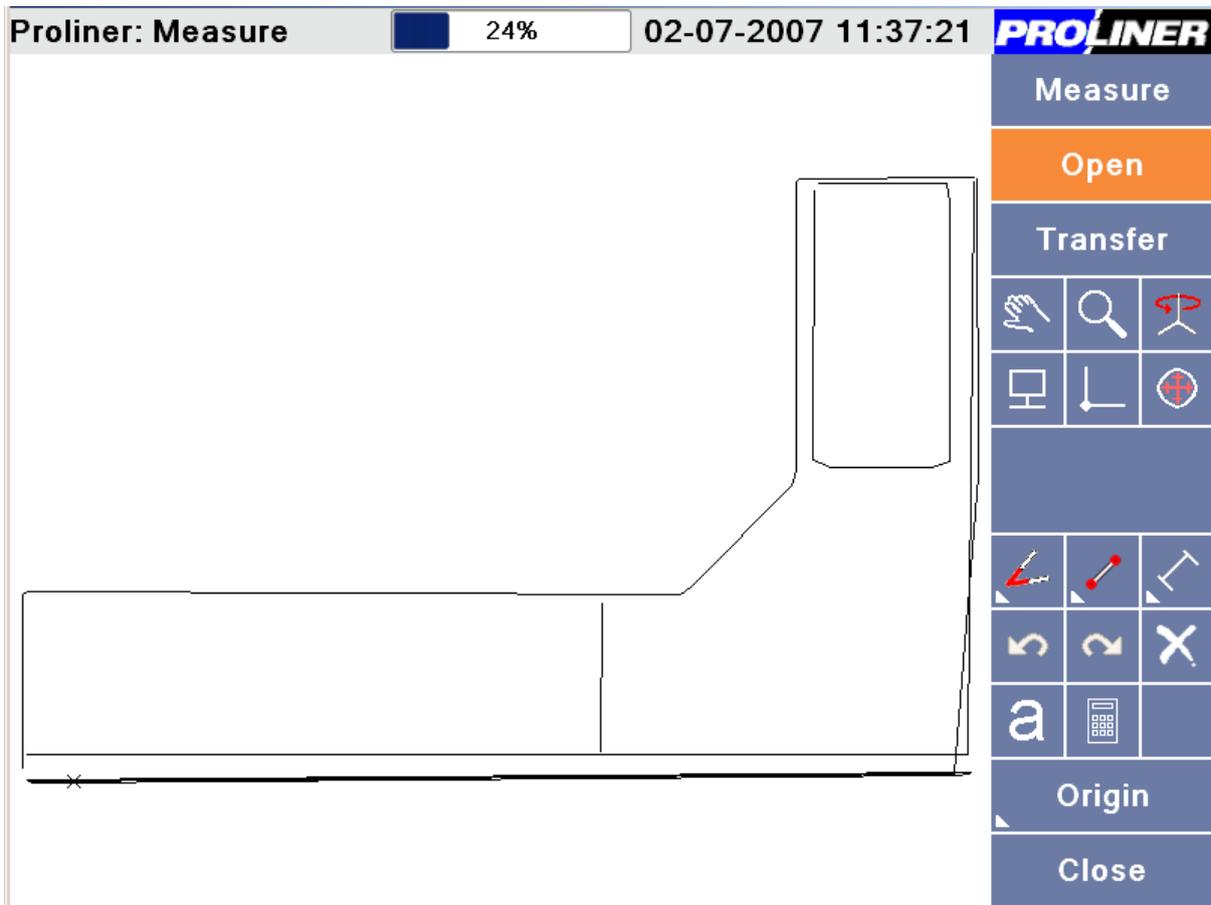
Menu 3 – **Dimensions**

-  **Horizontal** – Showing the horizontal dimension between two points
-  **Radius** – Showing the dimension of a selected radius
-  **Chain** – Showing the dimension of a defined chain of elements
-  **Vertical** – Showing the vertical dimension between two points
-  **Angular (Layer)** – Showing the angle between two selected layers
-  **Area** – Showing the square meters of a selected closed contour
-  **Aligned** – Showing the aligned dimension between two points
-  **Angular** – Showing the angle between two selected elements

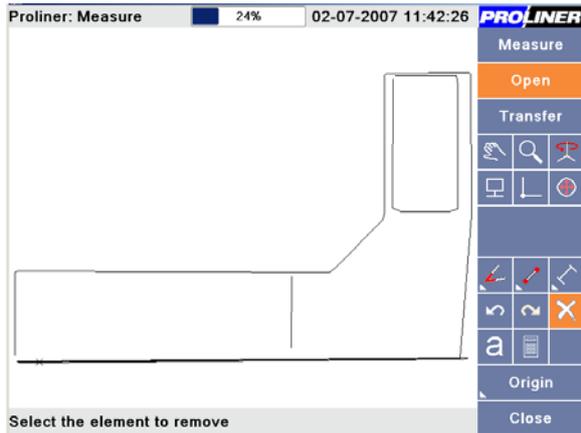
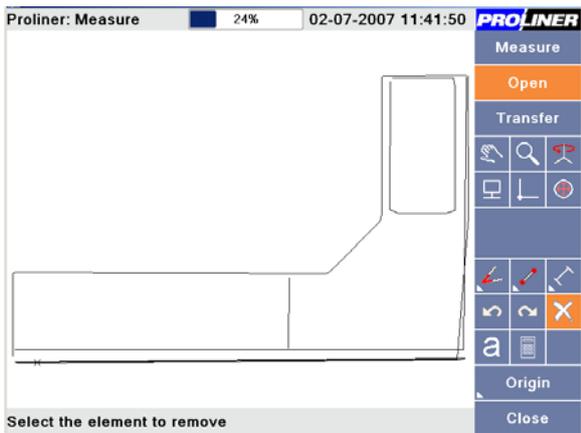
Menu 4 – **Settings**

- |                     |   |
|---------------------|---|
| <b>Projection</b>   | - Changing the projection for the complete drawing. A popup window will appear.                       |
| <b>Compensation</b> | - Changing the pen compensation for a selected contour/layer/measurement. A popup window will appear. |
| <b>Tolerance</b>    | - Changing the tolerance for a selected contour/layer/measurement. A popup window will appear.        |
| <b>Origin</b>       | - Changing the origin by selecting the zero point and direction of the x-axis                         |

4.2 Editing a countertop with backsplash measurement



We delete the first contour which was measured to define a projection plane



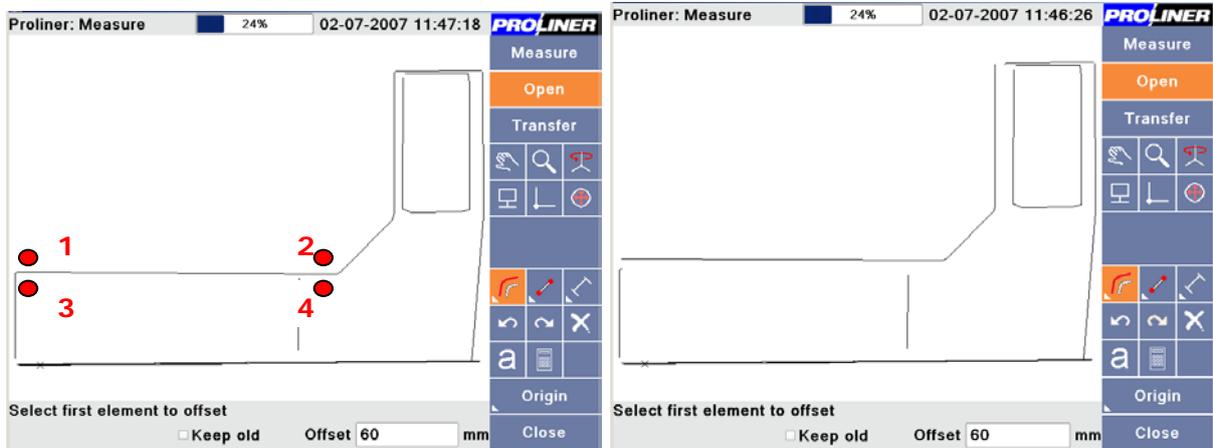


The frontside of the kitchentop needs an overhang of 60 mm. This can be filled in, in the window **Offset**. Optionally the original (chain of) elements can be left alone.

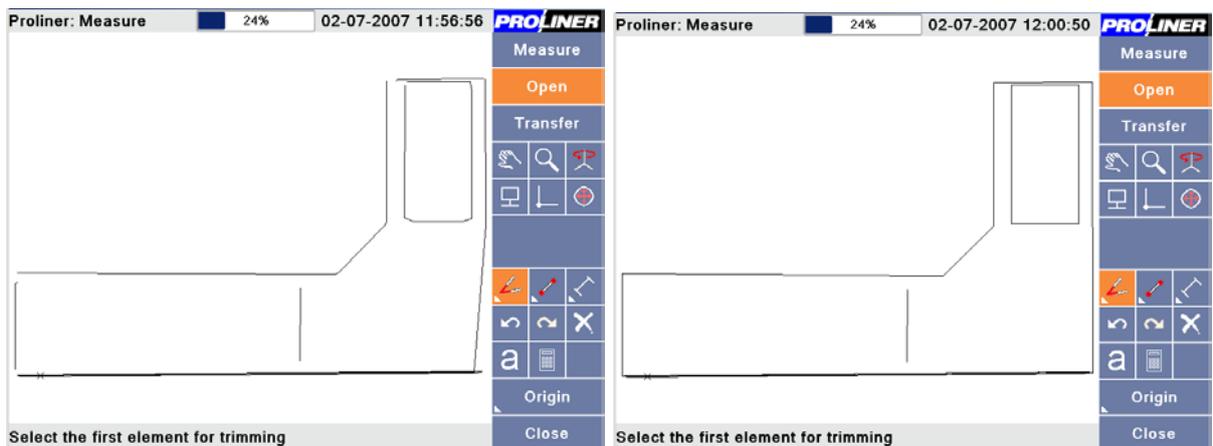
Select the first element. It is important to click on the correct sides of an element. This will determine the direction followed by the Proliner to find its way to the second element.

1. Offset to the outside going to the left
2. Offset to the outside going to the right
3. Offset to the inside going to the left
4. Offset to the inside going to the right

In this example we click the element on position 2 and then chose the last element to offset to.

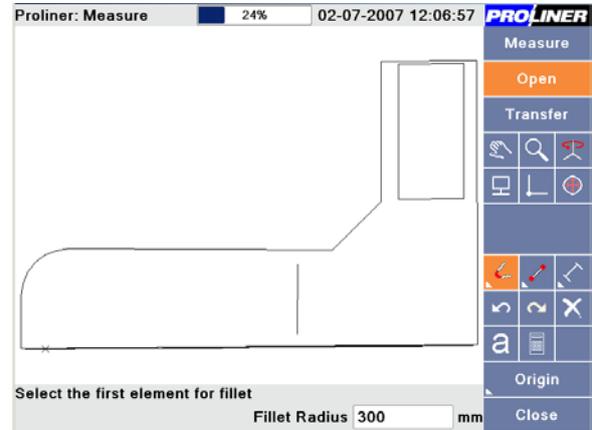
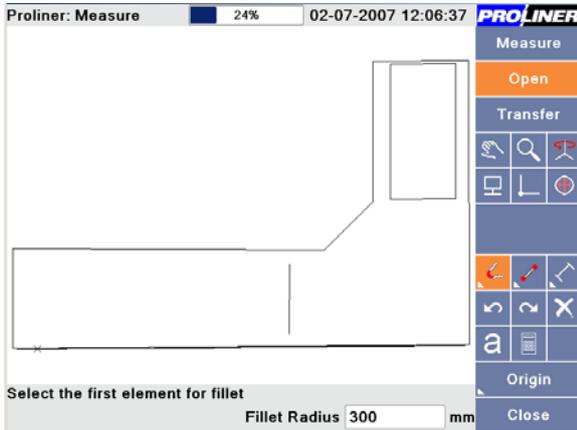


Next step is to connect all the lines together to create the correct corners. The closest two points of the elements need to be pressed to join them.





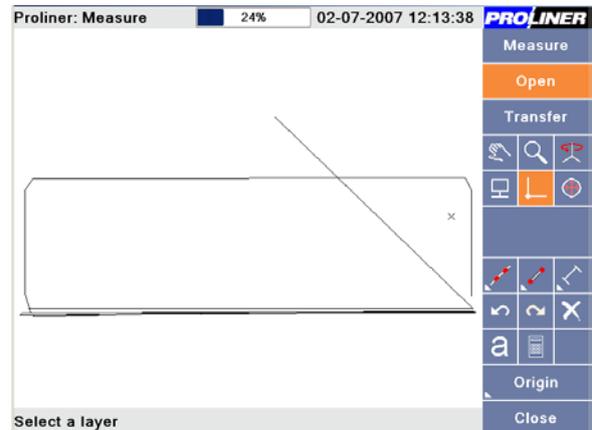
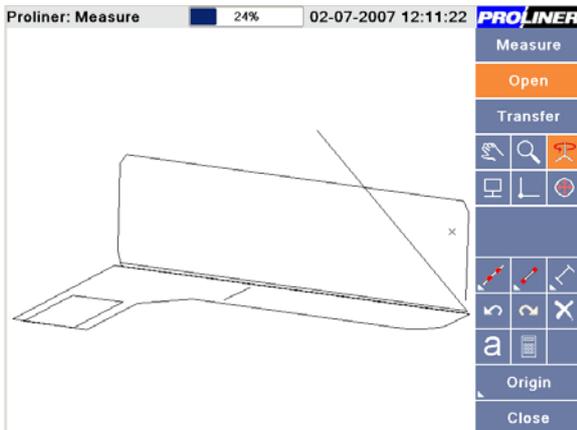
In one of the corners a fillet needs to be created with a radius of 60mm. Fill in the value in the window and choose again the two elements that need to be joined.



With the rotate button we can view the different projected layer, backslash.



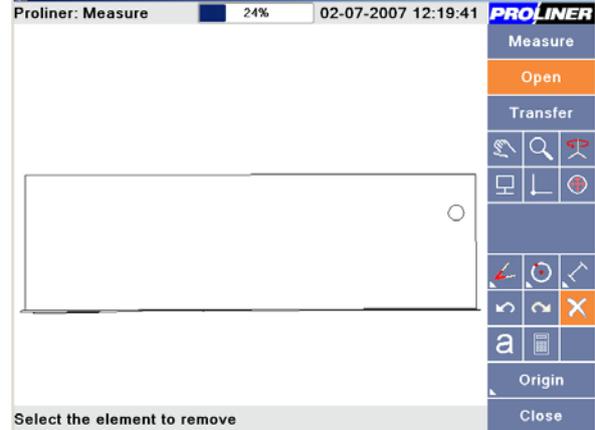
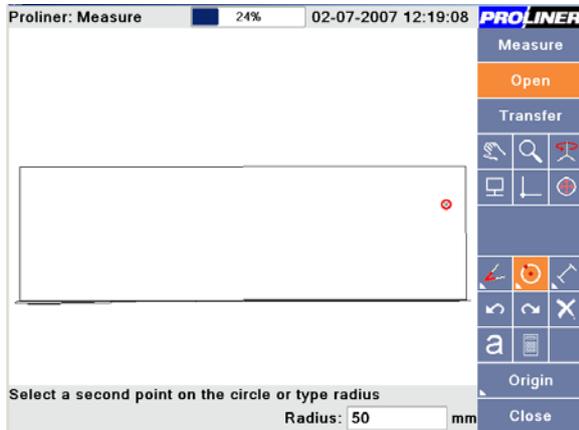
With the align function we can select the backslash to be shown on topview.



After deleting and trimming we proceed to draw a circle at the position of the socket.



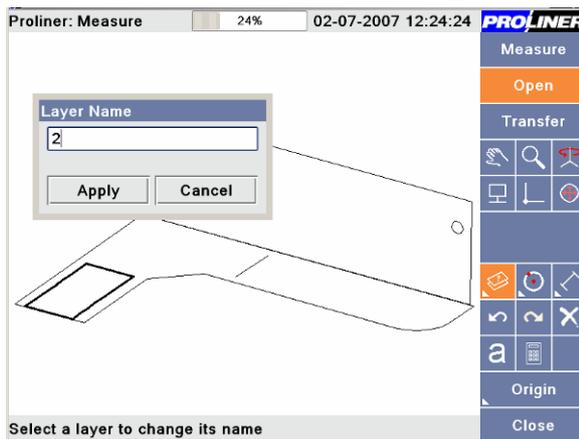
Make sure you select the center point. The radius can be defined by filling in a value or selecting a second point which defines the radius of the circle.



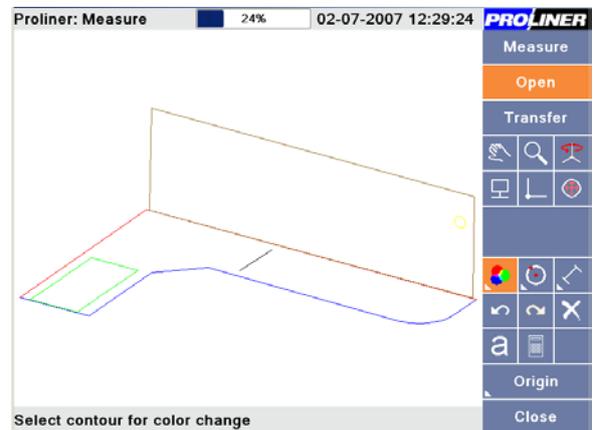
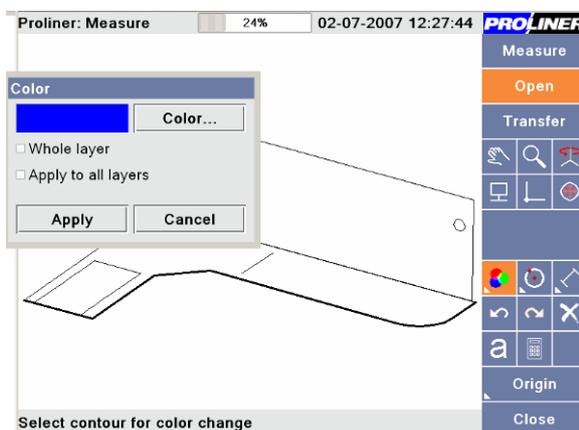
The drawing is a bit rotated to easily select the layers for renaming.



Select the layer name to be changed and fill in the new name.



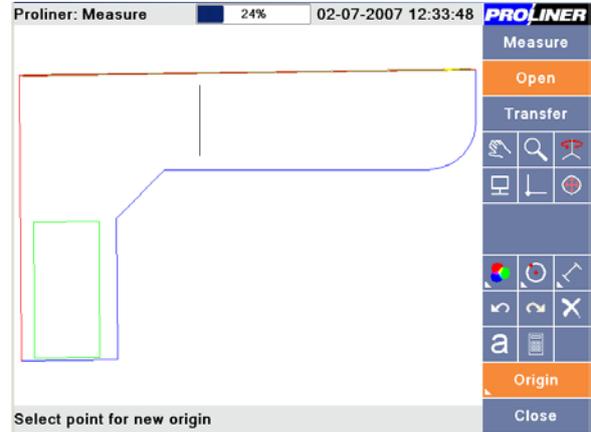
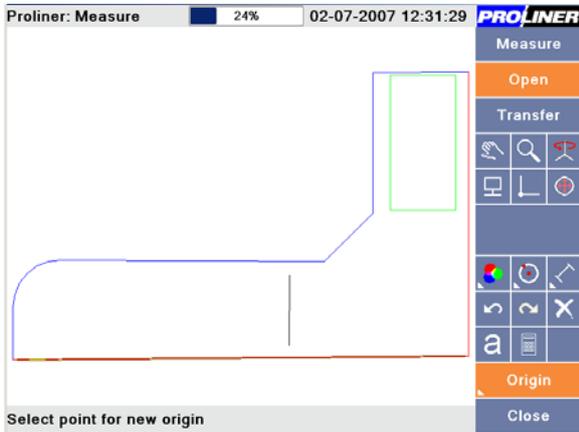
To show the differences between contours/layers we are going to colorize a few of them.



The drawing is again aligned with the countertop as a top view.



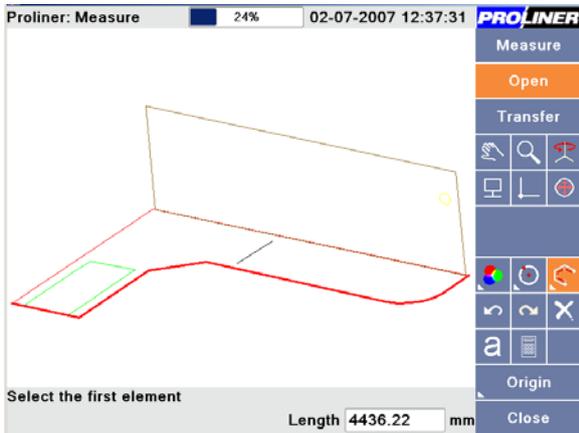
The Kitchen is not positioned straight on screen. By selecting a new origin and a direction of the x-axis we can position it as we want.



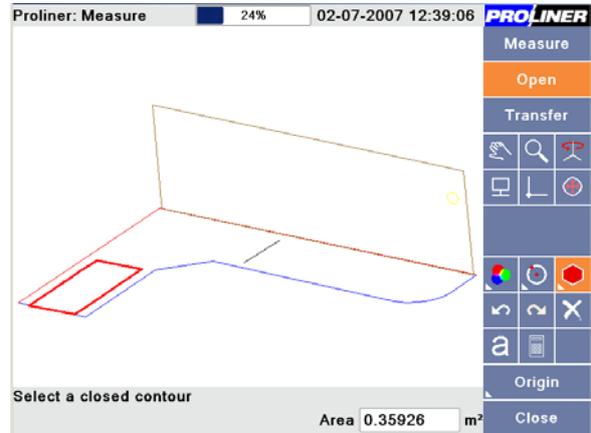
Last thing to do is checking some dimensions.



The length of the front side



The area of the hob

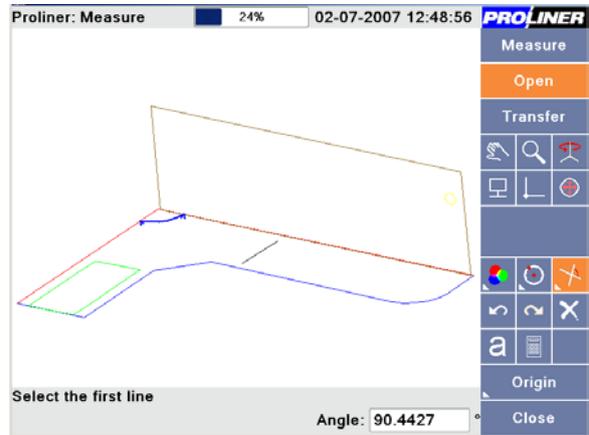




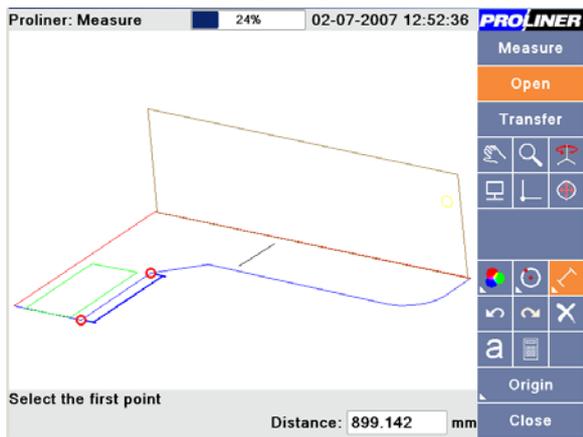
The angle between the top and back



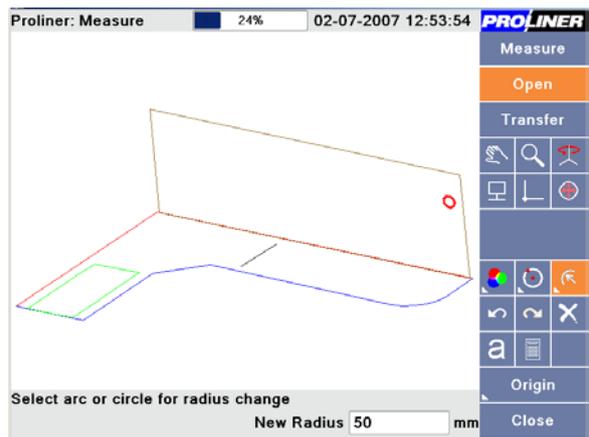
The angle between the two walls



The length of the top at the hob



The radius of the socket



Don't forget to **Save**.

## 5. Maintenance

It is important to clean the wire regularly to avoid that it will get stuck.



### Step 1

Keep the measuring arm in the one hand and the pen in the other. When you are going to clean the Proliner wire, make sure that you have started a measurement. Only then you can hear a sound when reaching the end of the wire.

### Step 2

Pull out the wire in an angle and turn it around while pulling out and in. In this way, dirt will be cleaned out.



### Step 3

Pull out the wire until the Proliner starts beeping. Clean the wire by moving it between a dust free cloth. One person pulls out the wire while another one is cleaning it (2 persons). Do NOT use chemicals or lubricants. You will see that the dirt is now lying on the cloth.

***We recommend cleaning the wire once a week.***

## 6. Pop-Up Screens



When **Start** is pressed for a new measurement but there has not been inserted or selected a project name.



When **Start** is pressed for a new measurement but there has not been inserted a file name.



When **Start** is pressed for a new measurement but an already existing file name has been chosen.



When you are about to go through the **index search**. The Proliner was not ready. Try again.



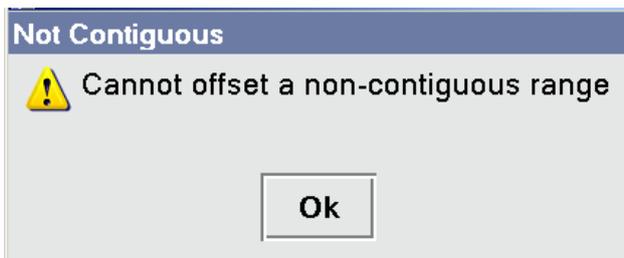
When a new layer name is defined and **Ok** has already been pressed without filling in a name.



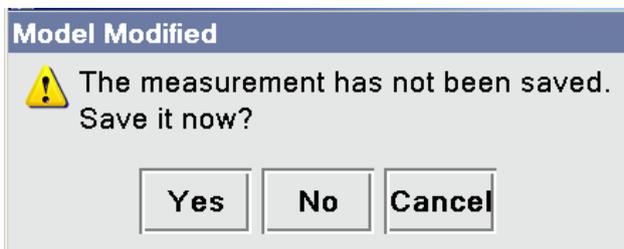
When **Transferring** a measurement or project but the USB-stick has not been inserted yet.



When **Trimming** two elements in the **Edit** menu. The two selected elements do not have an intersection though.



When **Offsetting** a range of elements which are not in a chain.



When **Closing** a measurement which has not been saved yet.

## 7. Troubleshoot

For troubleshooting and F.A.Q., please visit our website [www.prodim-systems.com](http://www.prodim-systems.com)